## 2009-10 HUNTING SEASONS IN REVIEW

Waterfowl hunting opportunity in Missouri began with the statewide teal (9/12-9/27) and Canada goose (9/26-10/7) seasons followed by the youth waterfowl hunting weekends, the opening of the North, Middle, and South Zone duck seasons and late season goose hunting. Missouri duck seasons have been 60 days long since 1997, with bag limits the same as allowed in the federal framework. Duck season timing has been later in the North and Middle zones than in most recent years.

The 2009 Missouri Canada goose season was 79 days in length with an early segment of 12 days and a late segment of 67 days, beginning the weekend before Thanksgiving. The daily bag limit was three birds during the early segment and two during the late segment.

**Table 1. 2009-10 waterfowl seasons.**

| Zone | Youth Hunt | Ducks | Canada Geese & Brant | White-fronted Geese | Light Geese (snow, blue, Ross's)* |
|---|---|---|---|---|---|
| NORTH | 10/24-10/25 | 10/31-12/29 | 9/26-10/7<br>11/26-1/31 | 11/26-1/31 | 10/26-1/31 |
| MIDDLE | 10/31-11/1 | 11/7-1/5 | | | |
| SOUTH | 11/21-11/22 | 11/26-1/24 | | | |

*The Conservation Order for light geese will be in effect from February-April 30 with no bag limit. Hunters may use electronic calls & unplugged shotguns, & shoot from ½ hour before sunrise to ½ hour after sunset. New: A Conservation Order Permit is required for residents & nonresidents during this time.

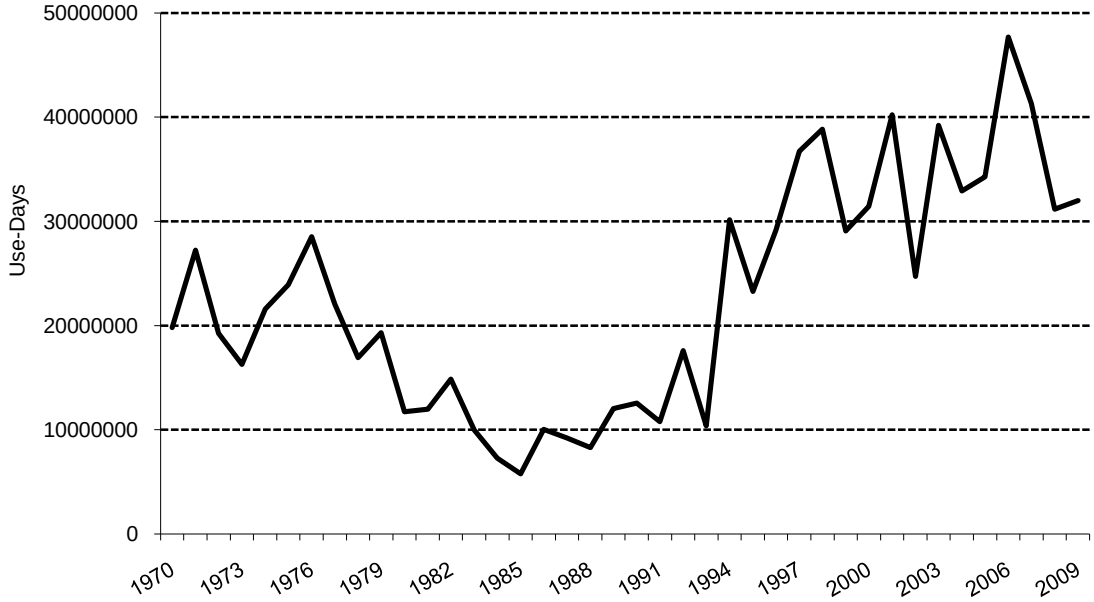
### Weather, Habitat and Migrations:

Fall and Winter Habitat:

Late summer and early fall (July-October) were the coolest on record. The wet conditions of 2008 persisted into 2009, and together these two years represented the wettest two consecutive years on record. The cool, wet weather made for ideal growing conditions for moist-soil plants. Habitat conditions looked ideal going into the 2009 waterfowl season.

Cool temperatures and above average precipitation characterized October 2009 in Missouri and much of the Midwest. In Missouri, October 2009 was the second wettest on record and the coolest in more than 30 years. Regionally, northwestern counties reported 4-7 inches of precipitation, while several east-central and southeastern counties reported more than 12 inches. In contrast to October, November was the 7$^{th}$ warmest on record in Missouri. It was the 5$^{th}$ warmest for the Midwest. The mild conditions of November came to an abrupt end in early December when cold temperatures moved into the state from December 3-9. A snow storm moved through the northern Midwest on December 3 and began to freeze wetlands in north

**Figure 1. Duck Use-days on State and Federal Wetland Areas in Missouri, 1970-2009.**




Missouri. Another system moved through Missouri on December 8-9. It brought heavy snow, ice and 35 mile/hour wind gusts through northwest and north-central Missouri. Snowfall accumulations of 8 to 12 inches were common. Wetlands in the northern half of the state froze and remained ice-covered through the remainder of the duck season. Another storm moved through around Christmas and froze most remaining open shallow water throughout the state. December was the 28th coldest and 25th wettest on record (1895-2009). Cold temperatures continued through the first two weeks of January and even Truman Reservoir, Smithville Reservoir, and Lake of the Ozarks were mainly ice covered by the first week in January. Habitats were able to thaw through much of Missouri in late January as a result of above average temperatures and rain. Overall, January was the 19th coldest and 67th wettest on record (1895-2010) in Missouri.

Waterfowl Migrations:

The first significant migration of pintail and green-winged teal occurred on October 9-10 when temperatures dropped into the teens in Prairie Canada. Observers noted the arrival of the first snow geese and white-fronted geese on October 19 and a significant diver migration on October 31. The mild conditions in November resulted in a very gradual influx of waterfowl. A few managers noted a migration event on November 6-7 and others observed migrating snow geese on November 14-16. Mallards arrived in greater numbers when cold fronts moved through around Thanksgiving (Nov. 24- 26 and Nov. 29-Dec.1). In December, mallards were also picked up before (Dec. 4th and 5th) and after (8th and 9th) the first significant winter storms of the season. Southern areas also picked up ducks (Dec. 10th and 11th) as shallow water habitats became inaccessible further north. Most ducks departed Missouri with the onset of ice in mid-December and the first significant numbers of migrant Canada geese arrived at this time. By the time of the Midwinter Survey, only the Missouri Bootheel retained significant numbers of ducks. The statewide Midwinter Survey (Jan. 4-9) estimate of 148,200 ducks was one of the lowest in 20 years (85,700 – 714,000). In contrast, the Midwinter Survey estimate of 230,000 Canada geese

was one of the highest estimates in recent years. During the third week of January, pintail, wigeon, green-winged teal, and white-fronted geese filtered back into Missouri as habitats thawed during the third week of January.

Ideally we would like to track the total number of ducks that use Missouri's wetlands each fall. However, with large movements of ducks in and out of Missouri, it is not possible to determine how many ducks in a count include the same ducks from the previous count versus new ducks that may have arrived and replaced ducks that had recently departed. As a result, biologists calculate duck use-days to track duck abundance. Duck use-days are calculated by multiplying the number of ducks counted by the number of days they were present. For example, 10 ducks present for 10 days would equal 100 duck use-days. Similarly, 50 ducks present for two days would also equal 100 duck use-days.

After reaching a peak of 47.7 million duck use-days during fall 2006, duck-use days have declined each of the last three years (Figure 1). The 2009-10 estimates of 32.0 million duck use-days was slightly below the average of 35.4 million duck use-days from 1997-2008, the most recent years with 60-day duck seasons. The lower number of statewide duck-use days in 2009 can be partially attributed to the early December freeze-up in the North Zone and a subsequent 24% decline in duck-use days in that zone compared to the previous five years. The Middle Zone had a similar number of duck-use days compared to the previous five-year average (11.6 million vs. 10.9 million) and the South Zone, 13% fewer duck-use days (2.1 million vs. 2.4 million duck use-days). On average, the North Zone accounted for 55% of the statewide duck use-days from 2004 through 2008.

**Duck Harvest:**
Estimates of duck harvest are based on two sources, the U.S. Fish and Wildlife Service (USFWS) National Waterfowl Harvest Survey and the Missouri Department of Conservation Waterfowl Post-Season Harvest Survey. Typically, USFWS estimates and MDC's post-season harvest estimates are similar (see Appendix A), and in the past we only reported the USFWS estimates. Beginning in 2002, the U.S. Fish and Wildlife Service implemented a new survey methodology and their preliminary estimates vary somewhat from MDC's post-season survey estimates, so in Table 2 we now report both estimates.

Duck harvest declined 18% from 2008 (Table 2). However, the MDC estimate of 502,000 was still within the range experienced during the past 13 years of liberal seasons (378,100 – 627,300) and near the previous five-year average of 526,600 ducks. Missouri duck hunters have harvested more ducks in recent years. To illustrate, the average harvest over the last five years (547,800) is 31% higher than the average harvest during the first five years of liberal seasons (417,200). Furthermore, each of the last four years has produced harvest estimates higher than any previous year over the last 30 years.

**Table 2. Missouri duck harvest (USFWS and MDC harvest survey data).***

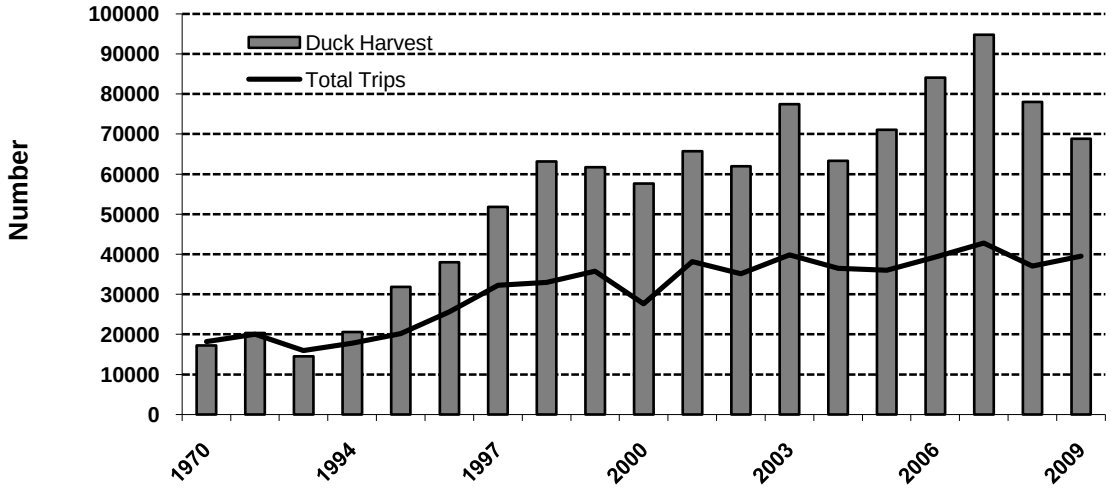
| Year | North Zone * | Middle Zone | South Zone | USFWS Estimate | MDC estimate |
|---|---|---|---|---|---|
| 1981-84 | 122,200 (52.5%) | 96,500 (41.5%) | 13,900 (6.0%) | 232,600 | |
| 1985-87 | 86,200 (49.3%) | 82,400 (47.1%) | 6,400 (3.6%) | 175,000 | |
| 1988-93 | 55,900 (53.5%) | 43,000 (41.2%) | 5,500 (5.3%) | 104,400 | |
| 1994-96 | 109,900 (55.7%) | 74,800 (37.9%) | 12,500 (6.3%) | 197,200 | |
| 1997 | 186,800 (51.0%) | 142,200 (38.8%) | 37,200 (10.2%) | 370,400 | 378,100 |
| 1998 | 239,600 (52.3%) | 167,100 (36.5%) | 51,700 (11.3%) | 469,900 | 414,900 |
| 1999 | 200,700 (62.2%) | 79,700 (24.7%) | 42,200 (13.1%) | 348,200 | 400,100 |
| 2000 | 256,500 (56.8%) | 98,600 (21.9%) | 95,700 (21.2%) | 404,000 | 446,800 |
| 2001 | 277,100 (60.1%) | 114,500 (24.8%) | 69,500 (15.1%) | 513,000 | 445,900 |
| 2002 | 74,700 (34.4%) | 129,500 (59.6%) | 13,100 (6.0%) | 208,000 | 392,600 |
| 2003 | 156,600 (37.1%) | 236,800 (56.2%) | 28,100 (6.7%) | 433,700** | 472,000 |
| 2004 | 133,700 (41.7%) | 154,500 (48.2%) | 32,600 (10.2%) | 322,700** | 396,000 |
| 2005 | 146,600 (32.9%) | 255,700 (57.4%) | 43,600 (9.8%) | 447,700** | 426,100 |
| 2006 | 158,100 (41.4%) | 188,800 (49.5%) | 34,600 (9.1%) | 383,500** | 570,600 |
| 2007 | 204,500 (50.6%) | 183,700 (45.5%) | 15,700 (3.9%) | 414,227** | 627,298 |
| 2008 | 194,200 (45.1%) | 210,600 (48.9%) | 25,600 (5.9%) | 448,418** | 612,949 |
| 2009 | NA | NA | NA | 398,700** | 502,013 |

* Three zones since 1991. Zone totals will not equal statewide total. The zone estimates are based on weights that include early season teal harvest. The statewide total excludes early season teal harvest.

** Data are preliminary.

Even though hunters took 7% more trips on Department Areas in 2009 (39,500 trips) compared to 2008 (37,000 trips), they harvested 12% fewer ducks (68,800 in 2009 compared to 78,000 in 2008, Figure 2). The average of 1.74 ducks per trip was lower than the previous five-year average of 2.04 birds per trip. Only a small portion of the statewide harvest takes place on Department Areas. From 1988-1997, hunters on Department Areas accounted for an average of 14.4% of the statewide duck harvest (range = 12.4-16.5%). During dry years, Department Areas with water pumping capabilities typically harvest a higher proportion of statewide total than during wet years. For example, in 1999-00, a dry season, 19.1% of the harvest occurred on public areas compared to 13.9% during the wet fall of 1998-99. Timing of crop harvest may also influence duck harvest distribution. In 2008, corn harvest was delayed and duck hunters reported spending more time hunting crop fields and irrigation lakes as more ducks were field feeding. Only 12.7% of the statewide harvest occurred on Department Areas during 2008-09. In 2009-10, this percentage rose slightly to 13.7%.

**Figure 2. Numbers of ducks harvested and trips taken on Missouri Department of Conservation areas.**




**Canada Goose Harvest:**

Missouri participated in a three-year experiment (2006-2008) to test the hypothesis that giant Canada goose harvest will buffer EPP Canada goose harvest. In this experiment, Missouri offered more Canada goose hunting opportunities, especially during the periods when migrant Canada geese were likely to be present. Prior to 2006, Missouri could only have 40 days of its Canada goose season during December and January in the North and Middle Zones. Beginning in 2006, Missouri could allow 62 days of Canada goose hunting December and January. The experiment that began in 2006 was extended through 2009 to see how these regulatory changes would affect EPP Canada geese during a year when they experienced a bust in production. In 2004, the previous year with a bust in production, Missouri's goose hunting regulations were 50% more restrictive than they were in 2009 and included a 1-bird bag limit during the late season. During the 2009 season, 15,900 goose hunters harvested a record 89,800 geese (1990-2007, Table 3). The number of Canada goose hunters in 2009 (15,900) was similar to 2008 (17,000), and 2007 (15,200).

**Table 3. Missouri Canada goose harvest (USFWS and MDC harvest survey data).***

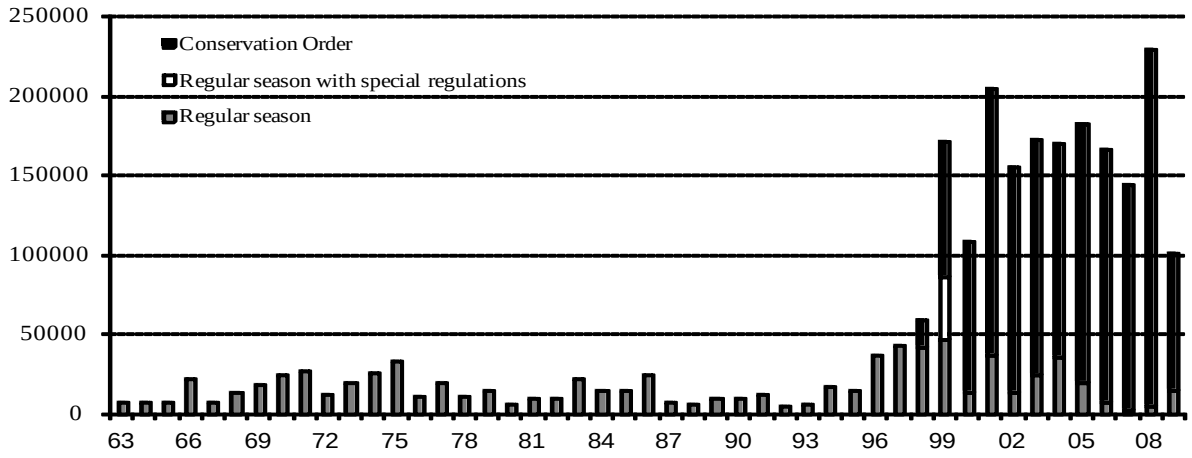
| Years | Swan Lake Zone | Southeast Zone | North Zone | Middle Zone | South Zone | USFWS estimate | MDC estimate |
|---|---|---|---|---|---|---|---|
| 1970-74 | 35,100 (81.0%) | 1,900 (4.4%) | 4,900 (11.3%) | 900 (2.0%) | 500 (1.2%) | 43,300 | |
| 1975-79 | 52,700 (78.7%) | 6,500 (9.7%) | 4,200 (6.3%) | 2,800 (4.2%) | 700 (1.0%) | 66,900 | |
| 1980-86 | 27,900 (71.4%) | 2,400 (6.1%) | 4,400 (11.3%) | 4,100 (10.5%) | 300 (0.8%) | 39,100 | |
| 1987-89 | 18,000 (58.8%) | 1800 (5.9%) | 3,000 (9.8%) | 5,800 (19.0%) | 2,000 (6.5%) | 30,600 | |
| 1990-92 | 11,100 (36.6%) | 4,700 (15.5%) | 7,600 (25.1%) | 6,600 (21.8%) | 300 (1.0%) | 30,300 | |
| 1993-96 | 6,900 (15.0%) | 7,200 (15.8%) | 22,000 (48.3%) | 8,500 (18.5%) | 1,100 (2.4%) | 45,700 | |
| 1998 | 300 (1.2%) | 2,300 (9.3%) | 13,800 (56.1%) | 1,600 (6.5%) | 6,600 (26.8%) | 24,600 | 37,400 |
| 1999 | 700 (2.0%) | 2,400 (6.8%) | 21,200 (59.7%) | 6,100 (17.2%) | 5,100 (14.4%) | 34,600 | 39,800 |
| 2000 | 1,700 (3.6%) | 4,500 (9.6%) | 26,800 (56.9%) | 7,000 (14.9%) | 7,100 (15.1%) | 43,800 | 76,300 |
| 2001 | 3,100 (4.7%) | 0 | 43,400 (64.3%) | 16,000 (23.8%) | 5,000 (7.3%) | 64,900 | 43,900 |
| 2002 | 3,300 (13.1%) | 274 (1%) | 14,500 (57.6%) | 4,900 (19.5%) | 2,200 (8.7%) | 23,500 | 44,000 |
| 2003 | -- | -- | -- | -- | -- | 18,500** | 56,400 |
| 2004 | -- | -- | -- | -- | -- | 8,800** | 39,500 |
| 2005 | | 387 (1.0%) | 24,000 (61.3%) | 12,961 (33.2%) | 1,741 (4.4%) | 39,300** | 51,800 |
| 2006 | | | 37,200 (53.2%) | 30,000 (42.9%) | 2,697 (3.9%) | 70,400** | 58,600 |
| 2007 | | | Data not available | Data not available | Data not available | 42,158** | 63,467 |
| 2008 | | | | | | 81,880** | 85,934 |
| 2009 | | | -- | -- | -- | 66,936** | 89,800 |

*The Swan Lake Zone was eliminated in 2004 and a statewide goose season was established in 2006.
** Data are preliminary.

**Light Goose Harvest:**
More liberal light goose hunting regulations after the mid-1990s and the availability of a Conservation Order (CO) beginning in February 1999 have resulted in a dramatic increase in the harvest of light geese in Missouri. About 8,000 hunters participate annually in the CO in Missouri and average about 40,000 total days hunted. This is comparable to the total number of days hunted on MDC areas during the regular waterfowl season. The total light goose harvest in Missouri increased from an average of 16,535 during the 10 years prior to the CO (1988-1997

regular season) to an average annual harvest since 1998 of 160,900 (regular season plus CO), a nine-fold increase (Figure 3). In contrast to the record setting 2008-09 Conservation Order, when 8,500 snow goose hunters harvested 224,300 light geese, preliminary estimates from 2009-2010 suggest that 5,200 hunters harvested 86,500 light geese. Weather conditions that included more snow and ice than usual prevented light geese from staying at traditional locations for very long. Poor production during the past few years also resulted in a low proportion of young birds making it more difficult to decoy geese. A grand total of over 1.8 million light geese have been harvested in Missouri since the Conservation Order began.

**Figure 3. Missouri light goose harvest: 1962-2009.**




**White-Fronted Goose Harvest:**
The Mississippi Flyway white-fronted goose harvest more than doubled from an average of about 65,000 during the early 1990s to over 152,000 during 2006-08. Over 90% of this harvest typically occurs in Louisiana and Arkansas. In Missouri, the harvest of white-fronted geese is low and unpredictable with the majority of harvest occurring in southeast Missouri during late season. In the last 10 years, the harvest of white-fronted geese in Missouri has ranged from undetectable levels to more than 5,000 (1999). The 2009 white-fronted goose harvest in Missouri was estimated at 1,080.

**Waterfowl Hunter Numbers:**
The waterfowl management community is increasingly concerned about the challenges declining waterfowl hunters pose to maintaining the tradition of waterfowl hunting. Duck stamp sales provide some clues about long-term changes in duck and goose hunter numbers. Nationwide, the number of ducks stamps sold went from 2.4 million in 1971 to 1.35 million in 2008, a 44% decline (Table 4). The Mississippi Flyway experienced a 40% drop over this same period, and Missouri, a 29% decline. In Missouri, part of the decline in duck stamp sales can be attributed to a decline in goose hunter numbers as Eastern Prairie Population (EPP) Canada geese quit wintering at Swan Lake. Duck stamp buyers include duck hunters, goose hunters, stamp collectors, and supporters of waterfowl conservation.

Thus far, Missouri has avoided the decline in duck hunters experienced by many other states and by other types of hunting in Missouri. Based on a Department of Conservation survey conducted each year from 1979 to the present, duck hunter numbers in Missouri have actually remained fairly stable. According to this survey, duck hunter numbers in Missouri declined from 37,500 in 1979 to just over 20,000 during the late 1980s, a period of restrictive regulations and low duck numbers, and then rebounded to nearly 40,000 in recent years (Table 4).

**Table 4. Trends in waterfowl hunting participation.**

| Season | Season Length | MO – Duck Hunters | MO – Duck Stamps | Miss Flyway Duck Stamps | U.S. Duck Stamps |
|---|---|---|---|---|---|
| 61-63 Avg | 30 | NA | 33,385 | 503,598 | 1,305,414 |
| 64-67 Avg | 41 | NA | 42,052 | 718,207 | 1,709,257 |
| 68-69 Avg | 30 | NA | 46,378 | 761,167 | 1,945,512 |
| 70-79 Avg | 50 | 37,500[1] | 58,118 | 892,081 | 2,186,556 |
| 80-84 Avg | 50 | 36,525 | 45,199 | 722,134 | 1,841,417 |
| 85-87 Avg | 40 | 34,167 | 39,851 | 649,518 | 1,645,342 |
| 88-93 Avg | 30 | 21,800 | 29,160 | 545,896 | 1,314,170 |
| 94-96 Avg | 47 | 23,870 | 31,755 | 671,956 | 1,477,335 |
| 1997 | 60 | 31,104 | 39,472 | 752,280 | 1,648,353 |
| 1998 | 60 | 26,826 | 33,906 | 735,443 | 1,621,839 |
| 1999 | 60 | 31,283 | 38,725 | 746,682 | 1639,053 |
| 2000 | 60 | 32,896 | 40,208 | 745,776 | 1,654,828 |
| 2001 | 60 | 38,002 | 40,353 | 734,300 | 1,641,421 |
| 2002 | 60 | 34,822 | 39,950 | 706,776 | 1,576,545 |
| 2003 | 60 | 37,079 | 39,851 | 695,242 | 1,562,145 |
| 2004 | 60 | 34,496 | 37,987 | 667,124 | 1,503,516 |
| 2005 | 60 | 35,101 | 36,447 | 625,376 | 1,446,391 |
| 2006 | 60 | 38,298 | 36,684 | 603,805 | 1,360,557 |
| 2007 | 60 | 38,792 | 38,160 | 602,641 | 1,373,514 |
| 2008 | 60 | 39,981 | 42,073 | 599,958 | 1,352,590 |
| 2009 | 60 | 38,656 | NA | NA | NA |

[1]The estimate of duck hunters in Missouri only includes 1979.